

MEETING SUMMARY

Job **Summary of January 27, 2016 Meeting with EPA
Discussion of Human Health Conceptual Site Model for Operable Unit 3 –
Process Areas, Yerington Mine Site, NV**

Client **Atlantic Richfield Company (ARC)**

Date **February 26, 2016**

To **Jack Oman**

From **Alma Feldpausch, Rosalind Schoof**

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1. Meeting Introduction

Meeting Purpose: Teleconference to discuss path forward for development of HHRA work plans for OU-1 and OU-3, as well as discuss EPA comments on the draft OU-3 conceptual site model (CSM), dated January 12, 2016.

February 26, 2016

Read-ahead: Technical Memorandum 1: Human Health Conceptual Site Model for Operable Unit 3 – Process Areas, Yerington Mine Site, NV, Sept. 23, 2015.

Ramboll Environ
901 Fifth Avenue
Suite 2820
Seattle, WA 98164
USA

Meeting Attendees

Chris Dirscherl	USEPA
Jeryl Gardner	NDEP
Mike Padham	CH2MHill
Jack Oman	Atlantic Richfield Company (ARC)
Alma Feldpausch	Ramboll Environ
Jamie Tull	Arcadis-US
Chuck Zimmerman	Brown & Caldwell
Guy Graening	Brown & Caldwell
Matt Arno	Foxfire Scientific

T +1 206 336 1650
F +1 206 336 1651
www.ramboll-environ.com

2. Discussion of HHRA Work Plan Development Process

EPA confirmed interest in proceeding along the proposed path of working through the HHRA planning process with ARC, whereby discussions of key technical issues are guided by memoranda prepared by ARC. EPA committed to providing comments on each memoranda one month after receipt, which would be followed by a group discussion and resolution of comments and questions. EPA and ARC agreed to memorialize discussions in meeting notes, with various options presented for translation of the memoranda and notes into work plans: incorporation of memoranda and notes into the body of the work plans; presentation of the memoranda and

notes under a cover letter which, together, would serve as a work plan; and other options. No final decision was made on compilation of the complete draft work plans.

Incorporation of the screening level ecological risk assessment (SLERA) work plan into the HHRA workplan also was discussed. EPA stated that it would be appropriate for the ARC team to provide an approach for a SLERA in the form of a single technical memorandum. The memo would then be folded into a work plan. This approach is acceptable to ARC and a SLERA technical memorandum will be prepared and submitted to the agencies.

Prior to discussing EPA comments on the OU-3 CSM, the ARC team (i.e., Jack Oman and consultant staff) provided an update on the draft environmental covenant / access agreement (EC/AA) being negotiated between property owner Singatse Peak Services and the state of Nevada. The EC/AA is expected to preclude future use of groundwater as a drinking water source and will restrict future land uses: residential use, child care, elder care, and schools.

3. Discussion of EPA Comments on OU-3 CSM

Each of EPA's written comments is provided below, followed by a general summary of the group discussion and comment resolution in *italic* print.

Discussion of General Comments

1. A reference to a personal communication/teleconference eight years prior should not be considered an acceptable reference without documentation and concurrence of the language used therein.

The ARC team clarified that the reference in question was obtained from the Conceptual Site Model for the Yerington Mine Site, Lyon County, Revision 3 (Brown & Caldwell and Integral Consulting 2009). EPA accepted use of the 2009 site-wide CSM document to reference this discussion between EPA and the ARC team regarding maximum depth of subsurface soil contacted by excavation workers. (See also discussion under specific comment 4, during which the subsurface soil definition was revised from 0-10 ft below ground surface (bgs) to 0-15 ft bgs.)

2. Additional discussion should be provided regarding the potential for offsite impacts.

The potential for impacts to Weed Heights or other nearby communities from transport of groundwater and soil was discussed, with the ARC team explaining that:

a) Migration of groundwater underlying OU-3 will be addressed via the site-wide groundwater (OU-1) HHRA.

b) Potential transport of surface soil via wind erosion was evaluated through the Baseline HHRA for the Inhalation Pathway (Brown & Caldwell and Foxfire Scientific 2011), which found no potential for increased chronic or acute adverse health effects associated with inhalation of metals and radionuclides in dust and particulate matter from the site.

EPA suggested that the OU-3 CSM discussion include a summary of the 2011 Baseline HHRA for the Inhalation Pathway. This summary will support the discussion of potential chemical migration pathways off-site and rationale for characterizing wind-blown dust to off-site communities as an incomplete pathway.

3. Section 5 of the Tech Memo (Receptor Populations) states that current Site operators and maintenance worker scenarios will not be included in the HHRA because these workers avoid dilapidated buildings, exposed foundations, or other areas where physical harm is a risk. However, as there are no stated engineered barriers to preclude worker contact with these areas, and as Site operators and maintenance workers could breathe particulate and/or vapor COPCs, exclusion of these receptor populations from the HHRA appears to be inappropriate. Exposure scenarios involving future site operations workers, both indoor and outdoor, should still be assessed to support risk management decision making, including the institutional controls needed for continued imposition of the health and safety program.

The ARC team agreed that the addition of a current and future onsite worker is reasonable; current/future workers will be added to the CSM as a receptor population.

4. Figure 2 shows leaching/percolation of chemicals from 2 to 10 feet bgs soil to groundwater, but then shows there is no potential contact with any OU-3 groundwater, and groundwater will be evaluated as part of the site-wide groundwater operable unit (OU-1) RI and HHRA. However, exposure to COPCs in groundwater could occur via VOC migration into a construction trench or via future hypothetical use of groundwater if groundwater is used as a drinking water supply or is used as process water.

EPA and the ARC team discussed revision of the CSM flowchart to clarify that the depth to groundwater (> 100 ft bgs) results in an insignificant pathway for migration of vapors to indoor or outdoor air, including migration to trench air. However, the revised CSM will depict migration of vapors to a trench or indoor air from areas of vadose zone VOC contamination, particularly in the vicinity of the former filling stations. The flowchart also will clarify that there is no direct contact with groundwater during trenching or other excavation work because groundwater depths exceed the maximum depth for intrusive work. It is not clear at this time if the EC/AA will restrict industrial groundwater use; the CSM will be revised to reflect potential groundwater contact pathways once the EC/AA is adopted.

5. While a future hypothetical residential exposure scenario is stated as being very unlikely in the Tech Memo (and this receptor population is therefore not included), it is customary that a HHRA does quantify this scenario so that the potential requirement for formal land use controls (i.e., to preclude future residential land use) can be addressed. Currently the Tech Memo simply says "In the unlikely event that future land use does not remain exclusively industrial, it may be necessary to revisit the risk assessment to assess alternative exposure scenarios." Future hypothetical residents should be added to Figure 2, and symbols added that indicate that the routes of exposure are potentially complete. This would allow a determination as to whether formal land use controls would be required and/or maintained.

EPA was not aware of the progress made on the EC/AA at the time the comment was drafted. Based on the anticipated EC/AA and confirmation by EPA counsel, EPA agreed that evaluation of a residential scenario will not be necessary.

6. EPA wants to confirm the intention to run a risk-assessment on a sub-area by sub-area basis, not OU-wide.

EPA expressed a desire to see subarea-specific risks due to a concern that "hot spot" areas may be overlooked. EPA acknowledged ARC's position that risks specific to each individual subarea would not add significant value to remedial decision making. It was agreed by EPA and ARC that evaluation of OU-wide risks combined with evaluation of select hot spot subareas would inform EPA on possible localized risks while also providing useful information to support remedial decision-making. The definition of "hot spot" and number of such areas to be evaluated were not discussed.

Discussion of Specific Comments

1. Section 2 of the Tech Memo says details on chemical of potential concern (COPC) release mechanisms and environmental transport media have been omitted. This was done in order to focus on key technical issues for the CSM. However, some of this information is needed to allow the reader to understand whether or not the exposure media and transport mechanisms (shown in the CSM Figure 2) have been correctly assigned.

A discussion of the timing for completion of the HHRA relative to completion of the OU-3 remedial investigation (RI) report replaced a discussion of this specific comment for the reason that if the HHRA is submitted in conjunction with or after the RI report then a detailed discussion of the fate and transport will be redundant. ARC consulted with EPA and NDEP after the teleconference and together it was determined that the HHRA work plan would precede the RI report. Therefore, the fate and transport discussion will be included in the HHRA work plan to support the CSM.

2. Section 4 of the Tech Memo (Exposure Media) states that "There is no complete exposure pathway for groundwater with anticipated future land use." This statement must be clarified to only apply to OU3.

EPA and the ARC team agreed that the HHRA work plan will clarify that the anticipated EC/AA will restrict potable groundwater uses within OU-3 and that the depth to groundwater limits the potential for direct contact during excavation activities.

3. Section 4 and Figure 2. Please clarify that primary and secondary exposure pathways may be addressed quantitatively and will be at least addressed qualitatively and that incomplete pathways will not be addressed quantitatively. Is the intent to identify which exposure routes will be quantitatively evaluated versus qualitative discussion in a subsequent technical memorandum?

The ARC team clarified that primary and secondary pathways were intended to distinguish between those pathways that would be significant contributors to total exposure (e.g., soil ingestion) relative to pathways that are unlikely to result in appreciable exposure (e.g., contact with storm water). ARC explained that exposures for complete, primary pathways will be quantified; secondary and incomplete exposure pathways will not be quantified. EPA and the ARC team acknowledged that the CSM is evolving with understanding of the data and

EC/AA and that identification of potential exposure pathways, including which pathways may/may not be quantified, may be revisited during the HHRA work plan development process.

4. Figure 2. Define or discuss the depth interval for the soil exposure pathways. Section 5.1.2 and Figure 2. Please clarify the exposure depth (15 cm for surface soil in Figure 2) and 60 cm for assessing external radiation exposure in Section 5.1.2.5.

The ARC team clarified that the 0-0.5 ft bgs soil depth was used only to comply with ARARs for radionuclides and that the 0-2 ft bgs depth interval is evaluated for external gamma radiation exposure. The ARC team and EPA agreed to revise the subsurface soil definition from 0-10 ft bgs to 0-15 ft bgs, based on the assumption that future utility workers may access depths greater than 10 ft bgs. The ARC team confirmed that the same soil depths will apply to both conventional constituents and radionuclides.

Regarding the soil depth interval relevant to ecological receptors, the ARC team stated that a soil depth of 0-6 ft bgs is typically evaluated (based on burrowing mammals).

5. Section 5.2. Please clarify the age of the trespasser.

The ARC team clarified that the trespasser will be represented by an adolescent, ages 11 to 16 years. This age range was acceptable to EPA. EPA asked if the EC/AA will restrict recreational use; the ARC team did not know the answer to this question. However, EPA indicated that the recreational scenario is not a concern for this OU, and that the worker and trespasser scenarios would sufficiently address risks for a recreational user.

4. Action Items

- ☐ Jack Oman to get update on schedule for completion of RI report.
- ☐ Jack Oman to update EPA on the EC/AA approval schedule.
- ☐ Jeryl Gardner to confer with State Engineer/Division of Water Resources on Singatse Peak Services' authority to restrict groundwater uses on OU-3.